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## A PRELIMINARY REVIEW OF THE NORTH AMERICAN DECTICIDÆ.

BY SAMUEL H. SCUDDER, CAMBRIDGE, MASS.

Having recently put my own collection of Decticidæ into systematic order and treated the collection of the U. S. National Museum entrusted to me by Dr. C. V. Riley in a similar manner, I have thought it would assist in obtaining better material for a future monograph if I were to publish at least a generic discrimination of the material at hand. At the same time I am able to clear up most of the synonymy of the species and assign to their proper location the various described species, very few of which (7 out of 23) will be found to have been originally placed in the genera to which they are here assigned. This is partly because it has been necessary to establish new generic categories for a large number of our species, which are very insufficiently known, having awaited a student ever since Herman's sketch of the genera of Decticidæ twenty years ago. In the course of another year I hope to make a complete study, and not only to characterize the genera more carefully, but to describe the numerous species here indicated. It is evident that in the West a considerable number of species are likely to occur additional to those now known to me, which number about fifty, divided among fifteen genera, five of which are monotypic, and only one of which is found also in the Old World. Much might be said regarding the geographical distribution of the genera; but I will reserve that for a future occasion.

### TABLE FOR THE DETERMINATION OF THE GENERA OF N. A. DECTICIDÆ.

- a1. Prosternum armed with two erect spines.
  - b1. Four terminal spines on the lower side of the hind femora, two smaller ones between a larger pair.
    - c1. Ovipositor straight.
      - d1. Prosternal spines short, obtuse. . . . . *Engoniaspis*.
      - d2. Prosternal spines long and slender, sub-acute . . . . . *Atlanticus*.

- c 2. Ovipositor arcuate.
  - d 1. Ovipositor curved downward; a median carina on the prothorax.....*Drymadusa*.
  - d 2. Ovipositor curved upward; no median carina on prothorax.....*Orchesticus*.
- b 2. Two terminal spines only (the outer) on lower side of hind femora.....*Tropizaspis*.
- a 2. Prosternum unarmed.
  - b 1. Fore tibiæ spined above on both margins.
    - c 1. Large bulky insects; tegmina of ♂ almost completely concealed beneath the pronotum; eyes but little larger than antennal scrobes. .... *Anabrus*.
    - c 2. Relatively small insects; exposed portion of ♂ tegmina half as large as pronotum; eyes fully twice as large as antennal scrobes. .... *Cacopterus*, p. p.
  - b 2. Fore tibiæ spined above on outer margin only.
    - c 1. Fore tibiæ with several spines above on outer margin.
      - d 1. Fore tibiæ with three spines above on outer margin.
        - e 1. Legs short, the hind femora scarcely or not extending beyond abdomen; surface of pronotum granulate.....*Peranabrus*.
        - e 2. Legs long, the hind femora extending far beyond abdomen; surface of pronotum smooth.
      - f 1. Pronotum without distinct lateral carinæ, except sometimes posteriorly; a median carina rarely present and then weak.
      - g 1. Pronotum transversely arched as much on the posterior as on the anterior half.
        - h 1. Ovipositor straight.....*Cacopterus*, p. p.
        - h 2. Ovipositor arcuate.....*Eremopedes*.
      - g 2. Pronotum laterally subangulate posteriorly, and often with a slight median carinula. .... *Idiostatus*.

- f 2. Pronotum\* with distinct lateral and median carinæ, the latter sometimes weak.
- g 1. Lateral carinæ of pronotum parallel or subparallel.....*Steiroxys*.
- g 2. Lateral carinæ approximated in middle of anterior half of pronotum, so as to narrow the dorsum by nearly one-half.....*Idionotus*.
- d 2. Fore tibiæ with four spines above on outer margin.
- e 1. Descending lobes of pronotum declivent, the dorsum narrow.....*Clinopleura*.
- e 2. Descending lobes of pronotum narrow, the dorsum broad.....*Plagiostira*.
- c 2. Fore tibiæ with only one spine above on outer margin, situated at apex.....*Atcloplus*.

#### ENGONIASPIS, Brunner (Rév. Syst. Orth., 185).

No species of this genus has yet been described. Brunner founded it upon a species from Missouri, in his collection, which is very likely the same as that represented in the Riley collection of the U. S. National Museum by an imperfect specimen from an unknown locality.

#### ATLANTICUS (ἄτλαντικός) Gen. nov.

This generic name is proposed for the only species of Decticinae (except some species of *Orchesticus*) that occur on the Atlantic slope of North America, and are confined to that district, or at least to the region east of the Mississippi. They resemble the European *Thamnotrizon* in general appearance, but have a spined prosternum. They are closely related to *Engoniaspis*, but the males are not apterous, the prosternal spines are well developed and the cerci are not depressed. Three species are known to me, two of them long ago described by Burmeister under the names of *Decticus dorsalis* and *D. pachymerus* (one of them, probably the latter, afterwards described by Walker as *Decticus derogatus*), and a third, which appears to be a more southern and robust form, represented in my collection by two pairs coming from North Carolina to Florida. These species may be thus distinguished:—

Inner tooth of ♂ cerci short; lateral carinæ of pronotum sharply pronounced.

Hind femora less than twice as long as the pronotum ; exposed portion of ♂ tegmina almost as ample as the pronotum.....*pachymerus*.

Hind femora more than twice as long as the pronotum ; exposed portion of ♂ tegmina less than one-third as ample as the pronotum.....*dorsalis*.

Inner tooth of ♂ cerci long ; lateral carinæ of pronotum not sharply pronounced.....*gibbosus*.

DRYMADUSA Stein (Berl. Ent. Zeitschr., IV., 257).

Recognized in an undescribed species in my collection, represented by a single ♀ from Oregon, in which the tegmina are very abbreviated and the ovipositor apically decurved. The genus has not before been known to occur in the New World, and appears to be the only genus of Decticidæ common to the two worlds. I have no European species with which to compare it, but from the description of the genus it seems to belong here, though the pronotum has a distinct median carina posteriorly.

ORCHESTICUS Saussure (Rev. Mag. Zool., 1859, 201).

This genus was founded upon a species from Tennessee, *O. americanus*, Sauss., unknown to me. The genus is, however, the richest in species of any of our Decticidæ, no less than six nominal species having been described, some of them (not yet carefully studied) possibly synonymous, and all, excepting the typical species, described under other generic names. These are, to give them in the order of their publication: *Anabrus hal-demanii* Girard, *Anabrus minutus* and *A. stevensonii* Thomas, and *Thyreonotus cragini* and *T. scudderi* Bruner. All of these are from the Mississippi Valley and the mountain region on the west, which seem to be the home of the genus, though it occurs also sparingly on the Atlantic slope. In a preliminary arrangement of the species in the collections at hand I have separated about a dozen species.

TROPIZASPIS Brunner (Rév. Syst. Orth., 187).

To this genus belongs *Arytropteris steindachneri* Herm., from Puget Sound. The genus seems to be peculiar to the Pacific Coast, from whence half a dozen species are known to me, none but the above described, and this not heretofore referred to the present genus.

## ANABRUS Haldeman (Stansb., Salt Lake, 372).

This genus was founded upon a species from Salt Lake, *A. simplex*, and the genus seems to be mainly confined to the elevated country west of the Mississippi prairies. Three other nominal species have been described, *A. purpurascens* Uhl., *A. similis* Scudd., and *A. coloradus* Thom., but whether these are all distinct or are all that exist in our collections, I have not yet endeavoured to determine. All the above, however, certainly belong to Anabrus, but three others, originally described as Anabris, belong, as noted above, to Orchesticus.

## PERANABRUS, Gen. nov.

This generic name is proposed for *Thamnotrizon scabricollis* Thom., from Southern Montana, which, except for its scabrous pronotum, has much the aspect of an Anabrus. It differs from it, however, in lacking spines upon the inner margin of the fore-tibiæ above, and in its distinctly carinate pronotum. It is poorly figured by Glover in his Ill. N. A. Ent., Orth., pl. 13, fig. 6.

## CACOPTERIS (κυκός, πτερόν), Gen. nov.

This genus, containing half a dozen species of minor size, none of which have been described, is remarkable for the fact that the inner margin of the upper surface of the fore-tibiæ is sometimes spined and sometimes unarmed; generally individuals of the same species seem to be always either one or the other, but in at least two of them, individuals of the same species differ in this respect, the males being more frequently spined than the females; when armed, there are always three spines present. The genus is peculiar to California and Western Nevada and the southern margin of the United States as far east as the upper Rio Grande. It has somewhat the aspect of the European Antaxius.

## EREMOPEDES (ἐρημῖος, πηδάω), Gen. nov.

Founded on an Arizona species, of which a single ♀ is in the U. S. National Museum. It has a very uniformly rounded, slightly compressed body, with a general resemblance to the smaller forms of Orchesticus.

## IDIOSTATUS Pictet (Mém. Soc. Phys. Gen., XXX., vi. 63).

Two species of this genus have been described; a smaller, *I. hermanni* (*Steiroxys hermanni* Thos.=*Idiostatus californicus* Pict.), and a larger, *I. bilineata* (*Steiroxys bilineata* Thom.), and there is what is apparently a third species, with excessively long ovipositor, in the U. S. National Museum. All the species come from California and Oregon.



STEIROXYS Hermann (Verh. Zool.-bot. Ges. Wien, XXIV. 207).

We possess three species of this genus, two of which have been described: *S. trilineatus* (*Thamnotrizon trilineatus* Thom.), the type of the genus from Wyoming and Utah, and *S. pallidipalpus* (*Decticus pallidipalpus* Thom.), from Utah, Idaho and Nevada; and apparently a third species from Northern California, Oregon and Alberta, which may be called *S. borealis*. They may be distinguished as follows:—

Abdomen conspicuously ornamented with a median series of V-shaped black spots.....*trilineatus*.

Abdomen with no conspicuous median abdominal markings.

Hind femora very long, more than three and a-half times longer than the pronotum; dorsal field of pronotum much less than twice as long as greatest breadth.....*borealis*.

Hind femora not so long, being scarcely more than three times as long as the pronotum; dorsal field of pronotum almost twice as long as greatest breadth.....*pallidipalpus*.

IDIONOTUS (ἰδιος, νότος), Gen. nov.

This genus is established on a couple of undescribed species, one in the U. S. National Museum, from California, the other in my own collection, collected by Kennicott somewhere on his explorations in or going to Alaska. It closely resembles Steiroxys.

CLINOPLEURA (κλίνω, πλευρά), Gen. nov.

This name is proposed for *Steiroxys melanopleura* Scudd., and its allies. It is nearly related to the European Psorodonotus, but is abundantly distinct, with no such prolonged pronotum. The typical species comes from Southern California and Utah, and two other Californian species are in the U. S. National Museum.

PLAGIOSTIRA Scudder (Wheeler's Ann. Rep., 1876, 501).

Founded upon *P. albonotata* Scudd., from Northern New Mexico. I have what is apparently a second and larger species of uniform colouring, but in poor condition, taken on the surveys for the Northern Pacific R. R.

ATELOPLUS (ἀτελής, ὄπλον), Gen. nov.

A peculiar form, apparently nearly allied to *Idiostatus* and *Cacopteris* and closely resembling them in general appearance, but remarkable for having both margins of the upper surface of the fore-tibiæ entirely devoid of spines, except a single one at the apex on the outer side. I know of but one species, from San Diego, California, represented by a single ♀ in the U. S. National Museum.

The following alphabetical list shows the genera to which the described species are here referred, with initial bibliographical references:—

- Anabrus coloradus* Thom., Rep. Hayd. Surv., V., 440 (*Anabrus*).  
 " *haldemanii* Gir., Marcy Expl. Red Riv., 259 [248], pl. 15, figs. 5-8 (*Orchesticus*).  
 " *minutus* Thom., Proc. Philad. Acad., 1870, 1875 (*Orchesticus*).  
 " *purpurascens* Uhl., Proc. Ent. Soc. Philad., II., 550 (*Anabrus*).  
 " *similis* Scudd., Hayd. Rep. Nebr., 249 (*Anabrus*).  
 " *simplex* Hald., Stansb., Expl. Utah, 372, pl. 10, fig. 4 (*Anabrus*).  
 " *stevensonii* Thom., Proc. Philad. Acad., 1870, 1875 (*Orchesticus*).  
*Arytropteris steindachneri* Herm., Verh. Zool.-bot. Ges. Wien, XXIV., 204-205, figs. 98-102 (*Tropizaspis*).  
*Decticus derogatus* Walk., Cat. Derm. Salt. Brit. Mus., II., 260 (*Atlanticus pachymerus*).  
 " *dorsalis* Burm., Handb. Entom., II., 713 (*Atlanticus*).  
 " *pachymerus* Burm., Handb. Entom., II., 712 (*Atlanticus*).  
 " *pallidipalpus* Thom., Fin. Rep. Hayd. Surv., V., 442 (*Steiroxys*).  
 " *sphagnorum* Walk., Cat. Derm. Salt. Brit. Mus., II., 258-259 (Not a Dectid).  
*Idiostatus californicus* Pict., Mem. Soc. Phys. Gen., XXX., vi., 64-65, figs. 35, 35a (*Idiostatus hermanni*).  
*Orchesticus americanus* Sauss., Rev. Mag. Zool., 1859, 201 (*Orchesticus*).  
*Plagiostira albonotata* Scudd., Ann. Rep. Wheel. Surv., 1876, 501 (*Plagiostira*).  
*Steiroxys bilineata* Thom., Fin. Rep. Wheel. Surv., V., 905 (*Idiostatus*).  
 " *hermanni* Thom., Fin. Rep. Wheel. Surv., V., 904, pl. 44, fig. 4 (*Idiostatus*).  
 " *melanopleura* Scudd., Ann. Rep. Wheel. Surv., 1876, 500 (*Clinopleura*).  
*Thamnotrizon scabricollis* Thom., Fin. Rep. Hayd. Surv., V., 441 (*Peranabrus*).  
 " *trilineatus* Thom., Proc. Philad. Acad., 1870, 1876 (*Steiroxys*).  
*Thyreonotus cragini* Brun., Bull. Washb. Lab., I., 129 (*Orchesticus*).  
 " *scudderi* Brun., Bull. Washb. Lab., I., 129-130 (*Orchesticus*).  
 All known North American Dectidæ are apterous or subapterous, their tegmina never extending over more than two abdominal segments or thereabouts. But many European species are fully winged, and such

forms should be looked for in America, especially in the West. To the beginner it should be added that by no means all apterous or subapterous Locustarians are Decticidæ, as witness the ubiquitous *Centhophili*; but Decticidæ may be distinguished from other Locustarians (to follow Brunner's latest table for their separation) by having the tarsi more or less depressed (the *Stenopelmatidæ* have them distinctly compressed); by the presence of foramina near the base of the anterior tibiæ (wanting in *Gryllacrididæ*); by having the antennæ inserted between the eyes, nearer the summit of the occiput than the upper margin of the labrum (instead of the opposite); by having the first two tarsal joints longitudinally sulcate on the sides; by having the fore-tibial foramina slit-like rather than elliptical; by the presence of an apical spine on the outer side of the fore-tibiæ above (wanting, however, in a single African genus of Decticidæ); and by the presence of a free plantula at the base of the first hind tarsal joint beneath, this last character separating them from the *Locustidæ* proper, where the plantula is not free.

### BOTYS URTICALOIDES, N. S.

BY THE REV. THOMAS W. FYLES, SOUTH QUEBEC.

Expanse of wings one and one-fourth inches. Length of body six-tenths of an inch. Head and antennæ black. Thorax, above black bordered with white, beneath white. Legs white. Wings white, satiny, translucent. Primaries have a slight tinge of yellow. On the costa, near the middle, are two black or dark brown blotches; below these, towards the inner margin, are two other blotches, sometimes united—the whole forming a broken, transverse band. Beyond this, near the hind margin and extending from near the inner angle for about two-thirds of the width of the wing, is a second, narrower band. Secondaries have a roseate tinge. Abdomen above black, the segments bordered with white, and the extremity tipped with white; beneath white.

Described from four specimens, taken all at one time and flying by day, in an "intervale" of Brome County, Province of Quebec.

Only one other specimen of this insect has, as far as I can learn, been taken. It was discovered by Mr. Ashmead and Mr. Linell amongst unnamed material in the National Museum at Washington, D. C.